Fermilab

Project X Working Group Meeting

August 28, 2008

10:00 AM – 12:00 Noon

Snake Pit

Agenda

1.	Fermilab PM Working Group Meetings	30 min w/10 min Q&A	Temple
2.	Project X Scope (including Coordination with Related Programs and exclusion of DUSEL and Elimination of NuMI from PX Scope for CD-0)	10 min	Holmes
3.	Status of Initial Configuration Document	10 min	Derwent
4.	**Project Timeline**	**20 min**	**Hoffer**
5.	**Project Staffing, Including Project Office Support and Subproject Managers**	**15 min**	**Hoffer**
6.	**Planning for CD-0 Review**	**10 min**	**Hoffer**
7.	NEPA Planning and Approach	10 min	Griffing
8.	Document Database Planning	5 min	McCluskey

Timeline Scenarios

1. Construction Start FY13; PED FY11
2. Construction Start FY14; PED FY12

Construction start = CD-3b approval
and one budget cycle (15-18 months) after CD-2

Key Assumptions

- All cases assume the Project X is a Line Item Construction Project of > $750M
- This implies CD-2 approved 15 - 18 months before (the Fiscal Year) construction funding starts
  - example an FY08 Construction Start requires a June 06 CD-2 approval for budget cycle
- Since the Action authorized by CD-2 is “Request Construction Funding”

DOE O 413.3 Actions Authorized by Critical Decision Approvals

DOE O 413.3A (Updated 2/2/07)

Preconceptual Planning	*Conceptual Design*	*Preliminary Design*	*Final Design*	*Construction*	*Operations*
❖	❖	❖	❖	❖	❖
CD-0	**CD-1**	**CD-2**	**CD-3**	**CD-4**	
Approve Mission Need	Approve Alternative Selection & Cost Range	Approve Performance Baseline	Approve Start of Construction	Approve Start of Operations or Project Completion	

Actions Authorized by Critical Decision (CD) Approval				
CD-0	**CD-1**	**CD-2**	**CD-3**	**CD-4**
• Proceed with Conceptual Design • Request PED funding • Start monthly PARS & Quarterly Project Performance reporting	• Allow Expenditure of PED Funds for preliminary design • Approval of long-lead procurement if necessary	• Establish Performance Baseline • Continue design • Request construction funding	• Approve expenditure of funds for construction	• Allow start of operations or project completion
Non-Nuclear Facilities--Prerequisite Activities for CDs				
• Review of Mission Need Statement (MSN) by Office of Program Analysis & Evaluation (CF-20) for $100M or greater. • Perform Mission Need Independent Project Review (IPR) for Major System (MS) projects (> $750K) • Perform Pre-conceptual Planning • Evaluate Information Technology (IT) projects with Departmental Enterprise Architecture framework	• Review of Acquisition Strategy (AS) (OECM review for MS project) • Review of Conceptual Design o Requirements Analysis o Risk Analysis o Alternative Analysis o Value Management determination • Assess Requirements Analysis, Risk Analysis, Alternative Analysis, & Value Management. • Appoint FPD • Establish & charter Integrated Project Team • Ensure compliance with One-for-One Replacement requirement for building square footage • Ensure Integrated Safety Management Implementation • Ensure consideration for High Performance Sustainable Building • Assess if QA Program is acceptable	• Perform Baseline External Independent Review (EIR) & validation by OECM for $100M or greater. Perform Independent Cost Review or Independent Cost Estimates for MS project as part of EIR • Program IPR for $20M to less than $100M • Review of Preliminary Design • Establish compliant project EVMS for $20M or more, & OECM certifiable EVMS for project TPC with $50M or more • Conduct Value Engineering (as applicable) • Incorporate High Performance Sustainable Building provisions into design • Determine if QA Program is acceptable	• Perform Executability EIR by OECM for MS projects • Perform IPR for Non-MS projects by Program (SC)	• Verify Key Performance Parameter or Completion Criteria achieved • Perform Readiness Assessment or Operational Readiness Review • Revise environmental management system. Post CD-4 Closeout • Perform Final Administrative & Financial Closeout • Conduct Post Implementation Review for IT projects
Hazard Category 1, 2, and 3 Nuclear Facilities--Additional Prerequisite Activities/Documents for CDs				
	• Perform Technical IPR • Prepare Conceptual Safety Design Report (SDR) • Prepare a Preliminary Safety Validation Report (PSVR)	• Prepare Preliminary SDR • Prepare a PSVR based on updated design	• Prepare Preliminary Documented Safety Analysis Report (SAR) • Prepare SER	• Prepare Documented SAR with Technical Safety Requirements • Prepare SER
Prerequisite Documents				
• MNS • Tailoring Strategy	• Acquisition Strategy • Conceptual Design Report • Risk Management Plan • Risk Assessment • Preliminary PEP, • Preliminary Hazard Analysis (HA), • Preliminary Security Vulnerability Assessment Report (SVAR) • Initial Cyber Security Plan for IT projects. • QA Program Documentation	• Performance Baseline • Preliminary Design • Updated Risk Assessment • Updated PEP • Updated HA (Approved at Field Level) • Updated Preliminary SVAR • NEPA Documentation • Updated Initial Cyber Security Plan for IT projects	• Final Design • Updated CD-2 documents • Updated QA Program • An Approved Construction Project Safety & Health Plan • Updated Cyber Security Plan for IT projects	• Checkout, Testing & Commissioning Plan • Project Transition/ Closeout Plan • Transition-to-Operations Plan • Finalized QA Plan, SVAR, HA Report, Construction Project Safety & Health Plan, • Finalized Cyber Security Plan for IT projects & completed Certification & Accreditation, as required Post CD-4 Closeout • Final Project Closeout Report • Lessons Learned Report • Required Operational Documentation
AS-Acquisition Strategy EIR-External Independent Review EVMS-Earned Value Mgmt. System HA-Hazard Analysis IPR-Internal Project Review	MNS-Mission Need Statement MS-Major Systems OECM-Office of Engr. & Const. Mgmt. QA-Quality Assurance PSVR- Prelim. Safety Validation Report	SAR-Safety Analysis Report SDR-Safety Design Report SER-Safety Evaluation Report SVAR-Security Vulnerability Assess. Report TPC-Total Project Cost		
Budget Related Documents				
• After CD-0 approval, Exhibit 300 for Projects >$20M: Annual submission initiated during the federal budget cycle when funds are requested. • Project Data Sheets: Annual submission initiated during the federal budget cycle when TEC funds are requested.				

OFFICE OF SCIENCE PROJECT MANAGEMENT DECISION/APPROVAL MATRIX (Updated 6/24/08)

DECISION/APPROVAL \ TOTAL PROJECT COST (TPC)			$750M or more	Less than $750M to $400M Delegation Allowed to SC-1 for less than $400M	Less than $400M to $100M	Less than $100M to $20M Delegation Allowed	Less than $20M to $5M
Prior to CD-0, Mission Need Statement			Reviewed by PA&E Approved by SC-1	Reviewed by PA&E Approved by SC-1	Reviewed by PA&E Approved by SC-1	Reviewed by SC-28 Approved by SC-1	Reviewed by SC-28 Approved by SC-AD
Prior to CD-1, Acquisition Strategy			Reviewed by OECM Approved by SC-1	Reviewed by SC-28 Approved by SC-1	Reviewed by SC-28 Approved by SC-1	Reviewed by SC-28 Approved by SC-1	Reviewed by SC-28 Approved by SC-AD
CRITICAL DECISIONS	**CD-0** --Approve Mission Need		S-2	US-SC	US-SC delegated to **SC-1**	SC-1	SC-AD
	CD-1--Approve Alternative Selection and Cost Range		S-2	US-SC	US-SC delegated to **SC-1**	SC-1 delegated to **SC AD**	PM or SOM if delegated
	CD-2 --Approve Performance Baseline		S-2	US-SC	US-SC delegated to **SC-1**	SC-1 delegated to **SC AD**	PM or SOM if delegated
	CD-3 --Approve Start of Construction		S-2	US-SC	US-SC delegated to **SC-1**	SC-1 delegated to **SC AD**	PM or SOM if delegated
	CD-4 --Approve Start of Operation or Project Completion		S-2	US-SC	US-SC delegated to **SC-1**	SC-1 delegated to **SC AD**	PM or SOM if delegated
BASELINE MANAGEMENT	Deviations		If performance, scope, schedule, or cost baseline at CD-2 cannot be met, then S-2 must be notified & a determination made to terminate the project or establish a new performance baseline. S-2 approval is needed if cumulative change in Performance Baseline of >6 months or >$25M or 25% of Original Cost Baseline at CD-2 or change in scope not meeting the mission need or not in conformance with the Project Execution Plan; or US-SC approval if preceeding threshold is not exceeded; or PSO approval if delegated.				N/A
	New Performance Baseline Approval						N/A
	Directed Change		Project changes caused by DOE Policy Directive, Regulatory, or Statutory action such as changes in approved budget or requirements.				
	Routine Project Changes/ Control	Program	SC-1	SC-1	SC-AD	SC AD	SC AD
		Project	PM, SOM or FPD (Optional)	PM, SOM or FPD (Optional)	PM, SOM or FPD (Optional)	PM, SOM or FPD (Optional)	PM, SOM or FPD (Optional)
		Contractor	Contractor	Contractor	Contractor	Contractor	Contractor
PEP --Project Execution Plan Approval			S-2	US-SC	US-SC delegated to **SC-1**	SC-1 delegated to **SC AD**	PM or SOM if delegated
Site Selection			S-2	S-2	S-2	S-2	N/A
REVIEWS	**EIR** --External Independent Review by OECM		Prior to CD-2 & CD-3	Prior to CD-2	Prior to CD-2	N/A	N/A
	IPR--Independent Project Review by SC-28		Prior to CD-0 (by SC Programs)	Prior to CD-3	Prior to CD-3	Prior to CD-2 & CD-3	Optional prior to CD-2 & CD-3
	ORR/RA--Operational Readiness Review/Readiness Assessment by Program		Prior to CD-4	Prior to CD-4	Prior to CD-4	Prior to CD-4	Prior to CD-4
	Design Review*		Prior to CD-1, CD-2, CD-3	Prior to CD-1, CD-2, CD-3	Prior to CD-1, CD-2, CD-3	Prior to CD-1, CD-2, CD-3	Optional
	Technical IPR for Nuclear Facility**		Prior to CD-1	Prior to CD-1	Prior to CD-1	Prior to CD-1	Optional
PARS Reporting (EVMS for Projects >$20 M)			Monthly Project Status After CD-0 and Monthly Project Performance After CD-2				Monthly Project Status After CD-0
QPPR --Quarterly Project Performance Review			Quarterly After CD-0 by SAE/AE				N/A
FPD --Federal Project Director			Appointed by SAE at CD-1	Appointed by AE at CD-1			

AD=Associate Director; AE=Acquisition Executive;l EIR=External Independent Review Conducted by OECM; FPD=Federal Project Director; IPR =Independent Project Review Conducted by SC; ORR=Operationl Readiness Review Conducted by SC; PARS= Project Analysis and Reporting System; PM=HQ Office of Science Program Manager; S-2=Deputy Secretary; SAE=Seceretarial Acquisition Executive; SC=Office of Science; SC-1=Director, Office of Science; SOM=Site Office Manager; US-SC=Under Secretary of Science; *=Design Reviews by individuals external to the project.; **=for high risk, hazard, and Category 1, 2, &3 nuclear facilities only

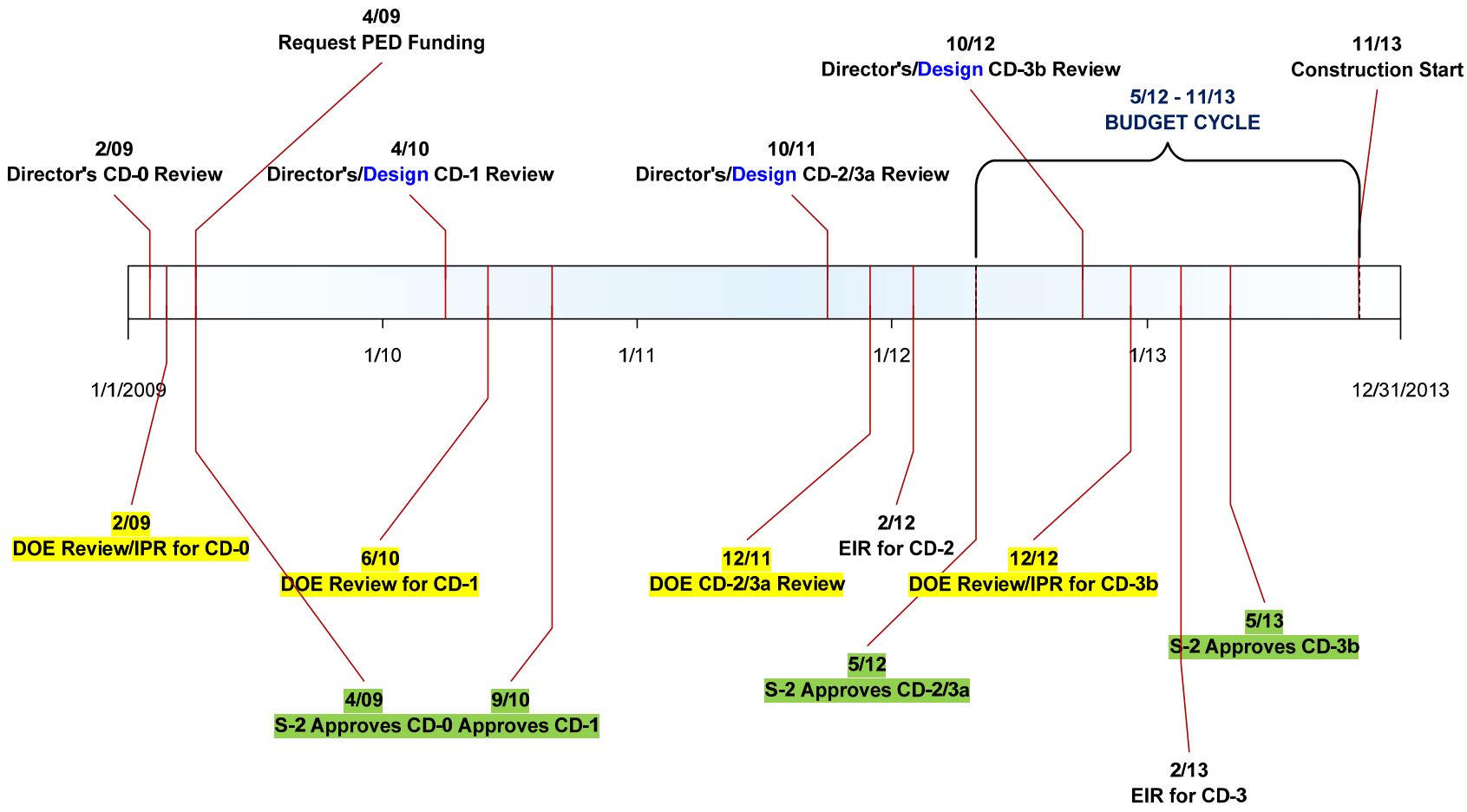
EIR Timeline

Typical Timeline for Performance Baseline External Independent Review
(timeline starts when review documents are received by OECM)

	Week 0	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
OECM Receives documents	◆								
EIR Draft Review plan is prepared and submitted for comment		↔							
Program/ Project / Site provides comments			↔						
EIR team develops Final Review Plan and adds specific Review Questions				↔					
Site reviews questions and prepares for EIR					↔				
On-site review ending with Outbrief to Project Team						↔			
OECM transmits Draft EIR Report for factual accuracy review							↔		
Program/ Projects submits factual accuracy comments								↔	
OECM transmits Final EIR Report including Corrective Action Plan									↔

Case #1Timeline

CD-0 Spring 09, PED funds FY11

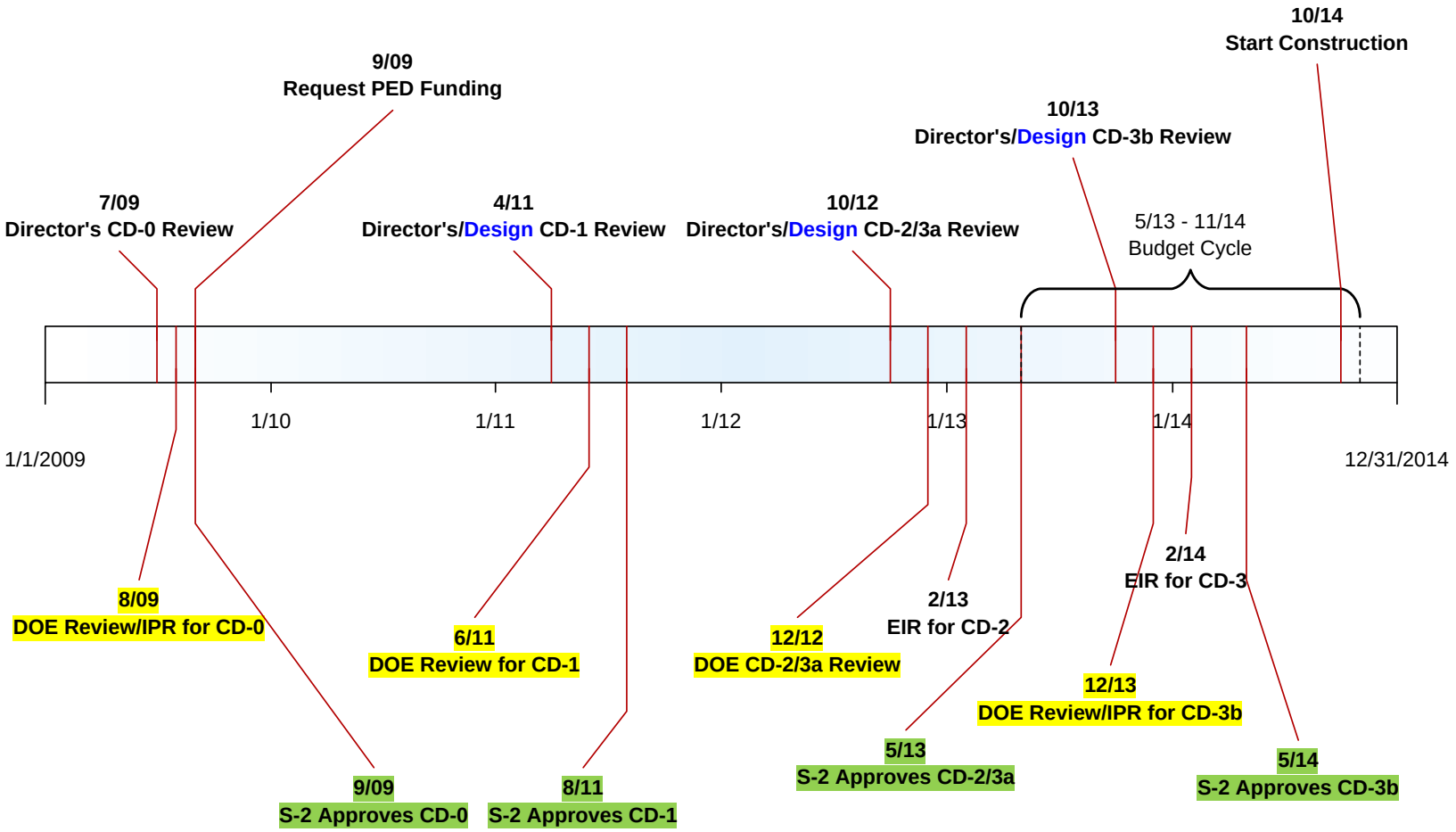


Comments on Case #1
Construction Start FY13; PED FY11

- PED funds FY11
- CD-2 approval in May 2012
- End of 2013 Construction start
- May not be sufficient time for CD-0 approval this spring
- About 1.5 yrs for conceptual design (CD-1), 1.5 yrs for preliminary design (CD-2/3a), 1 yr for final design (CD-3b). These durations have not been vetted with actual schedule planning.
- Ambitious!

Case #1Timeline

CD-0 Fall 09, PED funds FY12



Comments on Case #2
Construction Start FY14; PED FY12

- PED funds FY12
- CD-2 approval in May 2013
- End of 2014 Construction start
- More time to develop good CD-0 presentation
- More time to develop estimate for needed PED funding
- About 1.5 yrs for conceptual design (CD-1), 1.5 yrs for preliminary design (CD-2/3a), 1 yr for final design (CD-3b). These durations have not been vetted with actual schedule planning.
- Perhaps use OPEX (operating expense funding) for strong “Advanced Conceptual Design” to get a good “leg up” on Preliminary Design before PED funds available

Project Staffing

(Potential Positions/Responsibilities)

- **Project Scientist**
- **Deputy Project Scientist**
- **Project Manager**
- **Deputy Project Manager**
- **Subproject Managers (i.e. Level 2)**
- **Subproject Leads (i.e. Level 3)**
- **Project Controls (Schedulers w/EVMS)**
- **Project Budget Manager/ Specialist Senior/Specialist**
- **Project Engineers (Mechanical, Electrical/ Electronics, Civil)**
- **System Integration Engineer**
- **Project Chemist**
- **Project Integration Manager**
- **Project Procurement Administrator/Specialist**
- **Project Risk Manager**
- **Project Configuration Manager**
- **Project Quality Manager**
- **Project ES&H**
- **Project Webmaster**
- **Project Database Manager**
- **Project Administration**

CD-0 Prerequisites for Project X

- **Perform Pre-conceptual Planning** activities that focus on the Program's strategic goals and objectives, safety planning, and design.
- **Prepare a Mission Need Statement** that documents a mission requirement that cannot be met through other than material means. Additionally, the Mission Need Statement will document the potential hazards and their safety, security, and risk implications.
  - DOE G 413.3-17 Mission Need Statement Guide http://www.directives.doe.gov/pdfs/doe/doetext/neword/413/g4133-17.pdf
  - Mission Need Statement Review. The Office of Program Analysis and Evaluation within the Office of the Chief Financial Officer will review the Mission Need Statement and provide a recommendation to the Program Secretarial Officer
- **Perform Mission Validation Independent Project Review (*Lehman Review*).** A Mission Validation Independent Project Review is a limited review prior to CD-0 for Major System projects. It validates the mission need and the cost range. A Value Study may also be conducted, as appropriate, to assist in CD-0.

Other Pre CD-0 Work

- **Develop estimate to request Project Engineering and Design (PED) funds**. PED funds are requested at CD-0 using a Project Data Sheet as "design only" funds for preliminary and final design. PED funds are not to be used for construction, long-lead procurement, or major equipment items. PED funding requests are developed from historical data or parametric estimates.
- The objectives for the use of PED funds are to:
  - Improve the accuracy of the project cost estimate and support establishment of the Performance Baseline
  - Improve the DOE's planning, programming, and budgeting process for the acquisition of projects
  - Provide funds for Value Management (VM) activities
- PED funds can be made available at CD-1